"evidence on waste and inefficiency involves identifying specific instances where real-world managers made errors that increased costs and did not lead to commensurate increases in quality of service." *Id.* at 26. Only two real world examples of such waste have ever been identified by Hatfield proponents (video dial tone and official interLATA service of Bell South in Florida). Even if correct, the amount of waste inherent in these examples is de minimis relative to the disparity. It is a small wonder that current and former staff members of the National Association of Regulatory Utilities Commissioners (NARUC) have publicly stated that the Hatfield results "deviate so greatly from actual costs that the model can't be taken seriously at this time without detrimental effects on the current providers of telephone services."

Hatfield's Assumptions Are Unverified -- And Far Too Low

The recent state arbitration proceedings have shed considerable light upon the reasons why the HA Model produces such low loop and switching costs. In addition to the theoretical and modeling flaws discussed above, the HA Model makes a myriad of erroneous cost assumptions:

* Common costs are far too low. The HA Model, without any support in the Telecommunications Act or the FCC Order, arbitrarily establishes common costs as 10% of the (already underestimated) TELRIC costs. In reality, common costs are much higher, and include a number of "customer contact" requirements under state regulations, such as the establishment of

J. Shifman & R. Choura, "Universal Service Existing Proxy Models: What Can They Be Used For?" at 15 (submitted to Biennial Regulatory Information Conference at NRRI, September 1996) ("Shifman & Choura").

service centers and the ascertainment of service, performance, billing, and reporting standards. Many state commissions have established much higher levels of common costs.

- * Cost of capital is assumed to be 10.01%. The currently prescribed FCC rate for long distance carriers is 11.25%. Many analysts believe that this figure should be much higher, given the competitive risks that ILECs will now face.
- Depreciation lives are too long. Competition leads to innovation and innovation to shorter depreciation lives. The HA Model uses a currently prescribed depreciation schedule which, for example, has substantially longer depreciation lives for certain types of switches than that used by AT&T. (This is only one of the instances in which the HA Model will ignore competition when it will lead to higher prices while assuming competition and decreased costs in other cases.)
- * Drop wire costs are significantly understated. The HA Model assumes the average length of a telephone service drop wire is 125 feet, and that it costs \$2.00 per linear foot to bury. The HA Model also assumes that the average total drop line will cost \$40.00, which includes \$10 for material. These conflicting assumptions have not been reconciled.
- * Fill factors are too high. Fill factors determine the amount of space capacity appropriate for a particular distribution area. The HA Model fails to account for future growth, and relies instead on capacity estimates created for the Bell system as early as 1951. It estimates the number of "busy hour" call

attempts upon a 1980 report, data which can hardly be considered "forward looking."

- * Switching costs are too low. The HA Model uses heavily discounted prices and assumes that the ILEC would instantly install all of its switches at the deeply discounted prices. Moreover, the HA Model fails to take into account the fact that manufacturers normally price the basic switch at a low price, and charge a relatively higher price per line for subsequent additions.
- * Manhole costs are also too low. The HA Model estimates the cost of digging, installing, and furnishing a manhole to be \$3,000. There is no support for this estimate. (Robert Mercer, a Hatfield proponent, testified in a New York proceeding that he had seen support for this assumption submitted by Southwestern Bell in either Texas or Missouri. However, the record in those proceedings establishes that Southwestern Bell asserted an average manhole cost of between \$7,500 and \$10,000.)
- * The HA Model assumes that the cost of engineering, furnishing, and installing a switch is 10% of the cost of the switch. Actual ILEC data reveals these costs to be between 40% and 50% of the cost of the switch.
- * The HA Model fails to account for splicing, drop wire, and network interface devices incurred in providing public and special access lines.
- * The HA Model significantly underestimates the amount of distribution plant needed in sparsely populated areas. It assumes that there will be only two distribution cables in these areas -- which will generally cover between 40

and 50 square miles -- and that everyone will live an average of 125 feet from those cables.

The stock defense of the Hatfield proponents to these criticisms is that most of these assumptions can be changed. They are only "default values," and can be modified if the particular ILEC is able to show that higher estimates are justified. While it is correct that some of the values described above can be modified¹¹, the HA Model is anything but the "user friendly" paradigm it claims to be. Inherent in the HA Model -- and "hard wired" into the system -- are a number of cost factors which arbitrarily and significantly reduce the actual ARMIS reported costs of the ILECs -- evidently upon the assumption that competition will rid the ILEC of huge (and undocumented) amounts of waste and inefficiency.

<u>The HA Model Significantly -- And Arbitrarily -- Reduces Investment and Expense Costs</u>

These reductions were recently discovered in the latest round of arbitration proceedings. As the chart below demonstrates, the HA Model reduces total "forward looking investment" to 42% of current levels. It reduces total "forward looking expenses" to 33% of current levels:

It is believed that the first eight assumptions described above are "default values" which can be changed in the Model. The last two cannot be modified.

ACTUAL ARMIS v. HATFIELD ESTIMATE (\$1,000,000)

	Actual <u>ARMIS</u>	Hatfield <u>Estimate</u>	Estimate/ <u>Actual</u>
Network Investment	\$1,528.15	659.65	43.17%
Switching Investment	380.56	98.21	25.81%
Indirect Investment	123.32	35.12	28.48%
Total Investment	\$1,651.47	\$694.77	42.07%
	Actual <u>ARMIS</u>	Hatfield <u>Estimate</u>	Estimate/ <u>Actual</u>
Network Expense	\$74.23	\$17.15	23.11%
Switching Expense	18.73	2.64	14.11%
Indirect Expense	67.56	37.94	56.16%
Corporate Expense	70.70	16.40	22.55%
	72.73	10.40	22.5576

While competition may -- over time -- reduce an ILEC's average investment and expense cost, it is inconceivable that they will be reduced so drastically, at least without significant degradation of service. How is it possible to assume that an ILEC's future switch maintenance costs will fall to 13% of present costs? How can it be so glibly assumed that switching investments will be only 25% of current levels? The Hatfield witnesses have been unable to provide answers to these questions -- other than to rely upon their mantra that competition will drive all costs down.

The Hatfield witnesses are similarly unable to explain how -- or why -- these forecasted reductions should be utilized in establishing <u>current</u> rates and charges. It is not within the realm of possibility to assume that substantial cost reductions -- even if

The information on this chart was submitted in a GTE/MCI proceeding in Washington. Hatfield/ARMIS reductions for other ILECs in other states are comparable.

necessary -- will occur overnight. To the extent that reductions occur, they will occur gradually. The HA Model fails to account for this simple economic truism.

The HA Model Improperly and Selectively Mixes Cost Inputs

Rather than attempt to model actual costs and actual demand, the HA Model attempts to use whatever assumption is available to drive each individual costing component to the lowest possible level. In so doing, the HA Model ignores the big picture: a functioning telephone system cannot be built if every single input in that system is priced at the lowest ascertainable cost in the entire industry.

In any well designed microeconomic forecasting model, data sources must be consistent and must recognize the relationship between various types of inputs. For example, there will always be a trade off between capital and labor. A firm can choose a labor intensive strategy or a capital intensive strategy -- not both. If a firm has high capital costs, it can be expected to have relatively lower labor costs. In telephony, a trade off exists between loop investment and switching investment. The higher the relative loop investment, the lower the relative switching investment. Different ILECs will choose different strategies. What the HA Model does, however, is to grab the lowest data point from whatever source, and to mix these data sources together in costing out the supposed telephone system of the future.

To achieve this end, the Hatfield developers have scoured the telecommunications literature, searching for whatever data source can support the lowest cost for each input.

The HA Model relies on feeder fill factors established in 1951, distribution fill factors established in 1990, and busy hour call attempts established in 1980; it then mixes these values with data from more recent sources. It also draws upon data from a number of

different telephone companies, relying upon a New Hampshire study for drop line charges, a Pacific Bell study for the "network operations factor," a Maryland depreciation schedules for the assumed economic lives, an AT&T study for overhead costs, and Ameritech data for distribution plant assumptions. When it is unable to rely upon a published industry source, (a frequent occurrence), it will base its assumptions on an obvious and telling source -- "discussions with MCI and AT&T."

As a methodological matter, this process of relying upon data from different companies, different geographic areas, and different time periods is patently flawed. By mixing inputs from inconsistent sources, always utilizing the lowest cost, the HA Model designs a telephone system that could never be built and a cost structure that will never exist.

The HA Model's "pick and choose" strategy is graphically illustrated by its selective reliance upon certain Pacific Bell testimony. The HA Model assumes, on a "forward looking basis," that an ILEC will incur only 70% of its present network operations costs.

The developers initially relied upon a 1993 New Hampshire study. When tested on this assumption (the New Hampshire study is silent on this point), they abandoned this reference and relied instead upon testimony of a Pacific Bell witness in a California Public Utility Commission/Universal Service proceeding. That testimony compared Hatfield cost estimates against Pacific Bell's own estimates. According to Pacific Bell, the HA Model underestimated costs by \$1.3 million. In virtually every cost category, Hatfield estimates were significantly lower than Pacific Bell estimates. However, because the two studies

Testimony of R. L. Scholl, Docket Nos. R. 95-01-020 and I. 95-01-021, Tr. at 11 (California Universal Service Proceeding, April 17, 1996) (Exhibit E)

were structured differently and grouped costs differently, the Pacific Bell comparison noted a Hatfield overestimate relative to its own estimates in its "network operations category." Rejecting all else, the Hatfield developers seized upon this one tidbit of information to incorporate into their own model. They credited only the testimony relating to network operations, and ignored the balance — in violation of basic cost modeling principles.

The Identity Of The HA Model Sponsors Must Be Considered

As a final matter, the identity of the Hatfield sponsors and their underlying goals must be considered. MCI and AT&T, the two entities with the most to gain from the establishment of low interconnection prices, are footing the bill for advocates of the HA Model. The arbitrary cost reductions incorporated into the HA Model are often supported with a simple reference: "AT&T and MCI assumption." Their biases are self evident and the testimony of their witnesses in the recent arbitration proceedings could not be more candid and direct. They readily acknowledged that under the Hatfield/AT&T/MCI pricing scenario, the shareholders of the ILECs are expected to "take the hit." The HA Model is designed to achieve that result.

Testimony of Joseph McAnneny, Case No. 96-440, Tr. at 51 (Kentucky Public Service Commission, November 12, 1996).

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STF3C - part 1

Nation and state totals, Metropolitan Statistical Areas (MSAs).

STF3C - part 2

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103rd Congressional Districts.

STF3D (1995)

104th Congressional Districts.

1990 Census Summary Tape File 1 (STF1) 100% count - basic demographic variables

STF1A

Detailed geography - county, place, tract, etc.

STF1C

Nation and state totals. Not all tables are available.

STF1D (1993)

103rd Congressional Districts.

STF1D (1995)

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		Housing units	
H78.		YEAR HOUSEHOLDER MOVED INTO UNIT(2)	2
		Occupied housing units	
H79.		HOUSE HEATING FUEL (2)	2
		Occupied housing units	
H80.		KITCHEN FACILITIES(2)	2
		Housing units	
H81.			2
		Housing units	
H82.		TELEPHONE IN HOUSING UNIT(2)	2
		Occupied housing units	
н83.		VEHICLES AVAILABLE (2)	2
		Occupied housing units	
H84.		MORTGAGE STATUS (2)	2
		Specified owner-occupied housing units	
H85.	IMPUTATION OF		2
		Occupied housing units	
H86.		VACANCY STATUS (2)	2
		Vacant housing units	_
H87.	IMPUTATION OF		2
		Housing units	_
H88.		UNITS IN STRUCTURE(2)	2
		Housing units	_
H89.	IMPUTATION OF		2
		Specified owner-occupied housing units	_
H90.		MEALS INCLUDED IN RENT(2)	2
	Universe:	Specified renter-occupied housing units paying	g
	cash rent		_
н91.	IMPUTATION OF		2 ·
	Universe:		
Н92.		MORTGAGE STATUS AND SELECTED MONTHLY OWNER	
	COSTS (4)		
	Universe:	Specified owner-occupied housing units	

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Certificate of Service

I, Ann D. Berkowitz, hereby certify that copies of the foregoing "GTE's Comments" have been mailed by first class United States mail, postage prepaid, on December 19, 1996 to all parties of record and to all members of the Federal-State Joint Board.

Ann D. Berkowitz